Saving EDP $$ With The 360/25 Page 5

COMPUTERWORLD

The Newsweekly for the Computer Community

Weekly Newspaper – Second-class postage paid at Boston, Mass.

Vol. 2, No. 3 | Cambridge, Massachusetts, January 17, 1968 | Price: $9/year

Programmers Blamed Unjustly! Page 2

Small 360 Introduced; Cobol, Fortran & PL/1 — But Only Uses 30KB Tapes

NEW YORK, N.Y. – The latest member of the 360 family was simultaneously announced and demonstrated here this week. The computer, the 360/25, takes its place at the bottom of the major line of 360s, being able to run the full instruction code, and all the standard software suitable for its 16 to 48k memory sizes, yet being priced on the average of $1200 a month less than the current 360/30 price. It can handle 1401, 1440 and 1460 programs as well as 360 programs through a slightly redesigned version of the current 360/30 hardware compatibility option. Elimination of some of the controllers for the card, printer, and disc allows some considerable space savings at installation sites.

A number of associated stories indicating **where people can save** *with the 360/25 are given on Page 5.*

The demonstration showed one of the largest systems – the 48k model – multi-programming under the Tape Operating System. The programs involved included the compilation of execution of a Report Program Generator and the execution of a Cobol program. After the demonstration the audience was invited to ask questions and to inspect the equipment, but few seemed very interested in making more than a cursory inspection, and picking up some of the available literature.

A view of the new IBM system, the 360/25.

Unanswered Questions

In fact there were some quite interesting questions to be asked. The system had been introduced, the IBM spokesman said, because a price-performance capability between the present Model 20 and Model 30 was required. However, nothing in the demonstration, or in the literature, gave any performance measures for the hardware – or the software – or the compatibility options. Apparently none of this detail information is yet available, although the system, and the software and lots of glossy brochures were available. Even the instruction times, when COMPUTERWORLD asked for them, were not forthcoming. An IBM engineering spokesman estimated that the internal performance in 360 mode would be about 70% of that of the 360/30 but could apparently go no further.

The literature, which included a well-rounded set of brochures, illustrated the use of the new 360/25 in a variety of areas, including colleges and universities; distribution industry; federal government; financial institutions; foundaries; hospitals; life insurance companies; local government; manufacturing; paint manufacturers; petroleum marketing; property and liability insurance; public utilities; and science, engineering and management science.

Delivery

Deliveries of the system are due to start in a years time. Details and suggestions as to how it may be possible for users of the system to save from their EDP dollars are given on Page 5. In addition, COMPUTERWORLD has some suggestions as to how users can attempt to estimate the performance of the system.

Sole Responsibility

Software House Buys 50 PDPs To Support Software Sales

PRINCETON, N.J. – A software house, Applied Data Research, intends to sell computers together with their proprietary software. To support this revolutionary idea, they have contracted to buy 50 PDP 8/I computers within the next ten months. This is believed to be one of the largest number of computers purchased by a single firm at one time.

Richard Jones, ADR president, told COMPUTERWORLD that about one-third of the 50 systems would be leased with software support to educational and industrial establishments. "We aim," he said, "to bring computers to people who can use them, and to provide them with what they need to bring them quickly and easily into use. ESI (pronounced "easy", is an interface language for the PDP and LINC 8 computers. It has been developed and marketed by ADR) packages can help engineers so that they can learn to use the computers within a few hours. They won't have to continue to work through programmers – they can learn to handle their own problems themselves;"

Future Plans Include More Software

Commenting about the future, Mr. Jones said that they intended to develop more proprietary software. "This type of software takes a lot of preparation," he said, "and the problems involved are not obvious. We are taking our time and we are going to provide users with first-class software to match their needs."

The balance of the 50 systems which ADR is buying will be used partly for in-hours development work – presumably in connection with some future hardware or software products, and partly for direct leasing to outside users. Mr. Jones, however, emphasized that ADR was not becoming a computer broker.

New Style of Software Marketing

The transaction appears to be the first of a possible new marketing trend. In the past software houses have expected the users to obtain the hardware directly from the manufacturer, and have not interested themselves in this area. The new system of offering a package deal of software and hardware has the advantage of giving "sole-source" responsibility which is always attractive to computer users, and which previously was only available from the hardware manufacturers.

New Desk-Top Card Terminal

A card-reader for remote locations, the MDR-1000, has just been introduced by Motorola. See story on page 3.

Battle Of The 65s?

Multi-Processing On The 360 To Be Like Burroughs System

GAITHERSBERG, MD. – A multi-processor version of the 360/65, presently being tested in actual operation here, was placed in the IBM product line this week – and declared to be in the "mainline of 360 computers" by an IBM spokesman associated with the project.

"It uses the standard software," he said, "and it will continue to do so. It will not diverge from the other 360 systems in the future – and we have plenty of developments coming down the road now for that future."

Following Burroughs

The method selected by IBM is closely similar to that which has been in use on the dual-processor Burroughs 5000 and 5500 computers for the past 4 years. Two independent, but equally powerful, processors are located tasks by a single control program, which also allocates peripherals, etc. In both cases a single job stream is used, with the control program selecting programs which can be handled by the processor which also operate themselves in multi-programming modes. Even the numbers of the two systems presently being marketed are similar, with the as yet undelivered Burroughs 6500 facing the new Model 65.

The IBM 360/65 multi-processor was under the Operating System 360 using a modified form of the multi-programming with a variable number of tasks option. At least 512k bytes are needed in the common store, and up to 4 storage units are available. These can be manually partitioned between the processors if desired.

Performance

IBM claims that the performance

continued on page 3

Johnson, Ex-Univac Top Salesman, To Head Comress

Lee Johnson

Lee Johnson has been appointed president of the Comress Organization in Washington, whose main product is the SCERT program which automatically times out computer runs for evaluation purposes.

Previously a "wonder boy" salesman with Univac's Federal Systems Division, Mr Johnson had built up a reputation for being able to work in with the engineers at their drawing boards, and with the government officials in their committees so as to see that the government got what it wanted. Under his control at Washington, the Univac share of the Federal market jumped dramatically, and most of the credit was given to him personally for this. One of the innovations that he brought into Washington was the use of the Unicap program to help in preparing and presenting proposals.

Unicap was primarily the SCERT program of Comress with some minor modifications to make it more suitable for Univac.

Editorials

The Human Interface

Humans and machines meet at the computer console – and to the computer user the design of the console is always of great importance. The console of the Model 25 is heartening evidence that computer designers are beginning to realize some of the basic needs of humans. Gone is the need to read hex from the lights; the need to write down the contents of the switches; gone the difficulty of comparing what you have actually inserted with what you thought you had inserted. Gone also is the problem of the programmer not knowing whether the operator has entered things into the computer correctly, or wondering if the operator has correctly reported the contents of some memory locations.

In its place we have a quick, accurate, hardcopy operation through the console typewriter, leaving a clear record of what has happened with all doubts removed.

What an improvement! COMPUTERWORLD welcomes the 360/25 console, with these user oriented improvements.

Now We Can Plan Ahead

Planning for future EDP program projects within a corporation will be considerably easier since the new IBM announcements. Not only because any IBM announcements are themselves significant, but because they clearly indicate the trend of computer hardware for most manufacturers during the next few years.

The Model 25 announcements show that low-level multi-programming and previous system compatibility will be standard. This indicates that the programs now being written should be planned for use in such an environment in the future. In turn this suggests the need for good documentation in simple language, and a careful control of the storage used – particularly at execution time. Programs which change the amount of store needed from day to day will be welcome.

For its part, the Model 65 announcement shows that the processing unit will be considered as a "resource" – and that more than one processor will be provided when needed. This indicates the need to examine present and planned systems – to check for potential profits side-by-side with processing, or through common database.

The fact that the announcements come from IBM does not, of course, indicate any greater need to rely on that company than has existed for some years now. These announcements simply put the giant's blessing on developments which have already proved successful elsewhere – and perhaps that also is something which should be remembered when planning EDP.

COMPUTERWORLD
The Newsweekly for the Computer Community

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Published every Wednesday by COMPUTERWORLD, Inc., 129 Mt. Auburn Street, Cambridge, Mass. 02138. Telephone: (617) 876-2892 & TWX: 710-320-6635. Copyright 1968 by COMPUTERWORLD, Inc. Publisher: Patrick McGovern. Editor: Alan Taylor. Managing Editor: W. Walter Boyd. National Sales Manager: Neal Wilder. Associate Editors: Michael Manugian, Janet Fox, Heather Dolby, Joseph Hanlon. Assistant Editor: Felice Merritt. Circulation Manager: Elly Tennenholtz. Production Director: A.M. Babel. Production Associate: James Robinson. Advertising Service Manager: Mary Ann Regan.

Subscription rates are: $9 for one year, $16 for two years. Add $1 per year for Canada, $2 per year for Foreign. Please send all editorial and subscription material to: COMPUTERWORLD, Inc., 129 Mt. Auburn Street, Cambridge, Mass. 02138. Tel: (617) 876-2892. TWX: 710-320-6635.

Advertising Sales Offices: Chicago 60601: Taylor/Friedman/France, 333 N. Michigan Ave., (312) 332-7683. San Francisco 94103: Jules E. Thompson Co., 1111 Hearst Bldg. (415) 362-8547. Elsewhere: Contact Neal Wilder at the Cambridge office.

Letters to the Editor

To the Editor:

I read with interest the editorial "The Salesman's Dilemma" in your November 22 issue, in which you commented on the "charge-back" provision in a manufacturer's sales commission plan.

You might be interested in knowing that RCA follows exactly the practice you suggested; i.e., decreases the commission charge-back in proportion to the length of time the equipment has been installed.

We also do not have the problem to the same extent inasmuch as most of our sales replace competitive equipment instead of our own. That is, indeed, a happy and lucrative environment for a salesman. Applications from brave ones are invited.

E.S. McCollister
Division Vice President
Marketing Operations
RCA
Camden, New Jersey

A move from IBM to RCA could certainly solve an individual's problem – but COMPUTERWORLD's concern is with the position of the whole IBM sales force. They can be placed in a very awkward position when they have to either sell unnecessary equipment or pay back 100% of the salesman's commission which was earned by someone else many years ago. Only a change in the IBM Sales Compensation Plan can change this – so that is what COMPUTERWORLD wants to see. Ed.

Bad Policies – Not Programmers

Why We Have Bad Documentation

Poor management policy – and not programmer hostility – was blamed for the admittedly serious state of program documentation in most installations in a just published study of the practices of 13 EDP areas in the federal government. (Survey of Computer-Program Documentation Practices at Seven Federal Agencies. Bernard Scott, et al. Document PB 175701. Available from the Clearinghouse for Federal, Scientific and Technical Information. Springfield, Va. 22151.)

The authors buttress their claim with a graph (figure 1) which shows that most programmers say more, rather than less, documentation is needed; and which also shows that the more an organization's staff is dissatisfied with the documentation situation, the more it tends to realize the need for more documentation. These findings directly conflicted with a simultaneous survey of the EDP managements concerned. These took the view that left to themselves programmers would document a great deal less than they were presently doing, because they hated documentation.

The soundness of the documentation practices within the organization was tested by a series of questionnaires. Responses were used to generate a series of quantitative responses on key documentation issues, which proved quite useful in providing an easy-to-grasp handle on the rather nebulous problem. The authors point out that the results must be considered indicative, rather than quantitative.

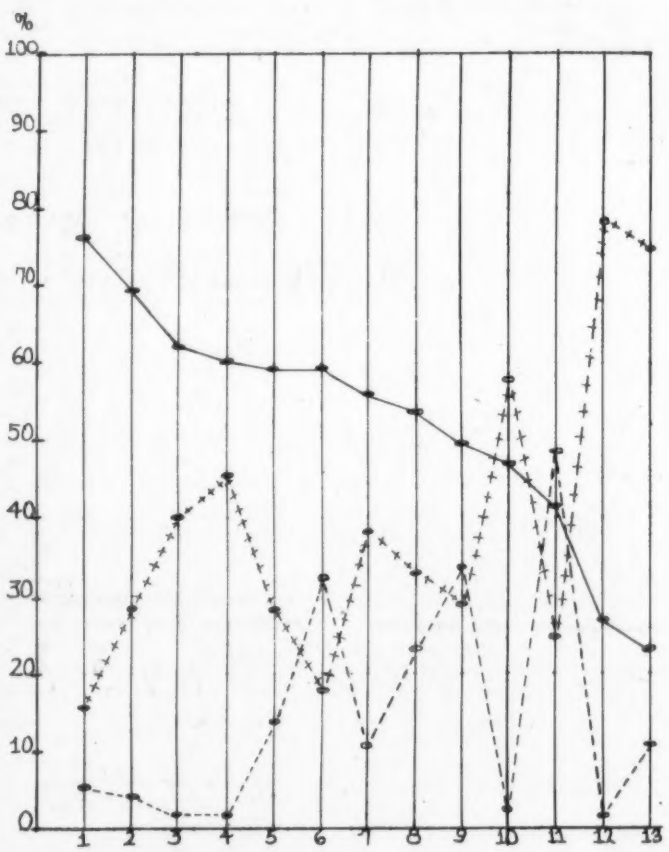
The conclusions of the survey, which was conducted so as to be useful for non-government as well as government EDP users, show that:

1. Half the agencies where there were no major problems did not have confidence in their own documentation policies – they thought that they had got through by luck.

2. Programmers need to have confidence in management's documentation policies before they will follow them. Properly motivated programmers will document more than they do now. However, the documentation, and particularly the narrative descriptions, will be poorly written in general, because programmers are, by and large, poor writers.

3. Standards are a mixed blessing. e they prevent anarchy, the unavoidable rigidity is a serious drawback.

4. Standards are not followed. In many cases, neither management nor programmers follow the rules laid down.



Nos. 1 - 13 represent 13 different EDP organizations arranged in order of decreasing satisfaction with the documentation policies as expressed by their programming staff.
Solid line: Percentage of programmers satisfied with documentation policies.
Plus line: Percentage of programmers who feel more documentation policies are necessary.
Minus line: Percentage of programmers who feel fewer documentation policies are necessary.

Do you usually have enough time to document to your			Respondent's G.S. Level			
SUPERVISOR'S SATISFACTION?		AVG	9	11	12	13
	YES	66%	100%	65%	60%	61%
A	NO	27%	0%	31%	33%	22%
	NO OPINION	7%	0%	4%	7%	17%
OWN SATISFACTION?		AVG	9	11	12	13
	YES	44%	81%	45%	39%	32%
B	NO	52%	19%	55%	57%	58%
	NO OPINION	4%	0%	0%	4%	10%

One of the biggest surprises of the survey was the results obtained when programmers were asked if they had adequate time to document. This was expected to be the main alibi of programmers as to why the state of the documentation was so bad. However, the great majority of the programmers in the various organizations agreed that time was not the problem! Programmers answers shown above.

Multi-Processing With The 360/65

continued from page 1

of the system "increases the effectiveness of both machines," and that the combined system "can operate at close to its top theoretical capacity." However, an IBM spokesman would not provide any performance estimates or examples to back up these statements – although admitting that they were in possession of such data as a result of running customers work streams.

Degradation Well Under 5%

Some figures of the performance degradation involved in the use of multiple memories was available however. This degradation occurs because of the extra cable length, and the coincidence of attempts to refer to the same memory modules by independent programs which in the past has been unexpectedly serious. With the new system, degradation has been kept down to "well inside 5%" of the machine capacity.

The first deliveries of the multiprocessor systems will take place in early 1969. The typical price of a system is about $5.6 million.

RCA To Build New Peripheral Plant

CHERRY HILL, N.J. – RCA will build an $11.7 million plant in Marlboro, Mass., for the engineering and production of computer peripheral equipment.

The new plant, to be located between Boston and Worcester, will occupy 220,000 square feet for the engineering, design and manufacture of new electronic data processing products. These include data gathering equipment, random access storage units, magnetic tape stations and other associated devices for computer systems.

Construction will begin in 1968 with the target date for initial occupancy scheduled for early 1969.

Initially, a limited number of different types of electronic data processing devices for RCA's Spectra 70 systems will be assembled at the Marlboro plant. At full operation, a broad range of computer peripheral devices will be designed and manufactured.

Desk-Top Card Reader For Remotes Announced

PHOENIX, ARIZ. – Motorola Instrumentation and Control Inc., has announced the development of an inexpensive desk-top reader for acquiring data from mark-sense documents, mark-sense cards, punched cards, or combined mark-sense/punched cards.

The new MDR-1000 reader provides a simple means of entering into a data processing system, in computer language, data marked or punched on cards or marked on standard 8½" x 11" documents. Cards can be fed into the new device singly or automatically in batches of up to 500 with an optional automatic hopper.

Low Cost Method

The MDR-1000 thus offers systems designers a new, low-cost method of getting raw data, right from the source, without need for skilled data processing equipment operators. In addition, the MDR-1000 is small enough (16¾" wide by 16¼" deep by 9¾" high) to fit almost anywhere.

Applications for the Motorola concept of source data entry can be found in many types of industrial, commercial, and service business. A system has already been installed at a major Bell System telephone company, where it has vastly simplified and speeded the handling of service calls and maintenance assignments.

More Detailed Information

The telephone company installation has shown that the MDR-1000 allows the collection of more detailed information than is feasible with manual techniques. It has also shown a considerable savings in time and the need for skilled personnel when compared with such systems as keypunching from handwritten forms.

The MDR-1000 produces a standard USASCII output that is compatible with standard telephone transmission interfaces for long-distance transmission or directly with standard data processing equipment, such as teletypewriters, tape recorders or computers.

Punches or Pencil Marks

Cards fed to the MDR-1000's optical read head can be either tab punched or pencil marked (marksense) or carry a combination of both types of data. Thus cards can be prepunched with certain basic or identifying data for later variable data marking by field personnel.

A typical application for this type of card would be utility meter reading. When reading the meter, the utility employee would merely have to mark a few boxes with an ordinary soft pencil to produce a source document ready for the MDR-1000.

In addition, the MDR-1000 will accept mark-sense data from the edge of page-size documents, in a 12-row band equivalent to a standard tab card.

Serial or Bit Parallel Form

Input format for the MDR-1000 will accept mark-sense data from the edge of page-size documents, in a 12-row band equivalent to a standard tab card.

Input format for the MDR-1000 is standard Hollerith coding arranged in either 80- or 40-column spacing. Data can be handled in either bit serial or bit parallel form. Bit serial data rates can be either 10 characters per sec (110 bits per sec) or 105 characters per sec (1050 bits per sec). Bit parallel data rate is 75 characters per sec (750 bits per sec). Parity can be either odd or even.

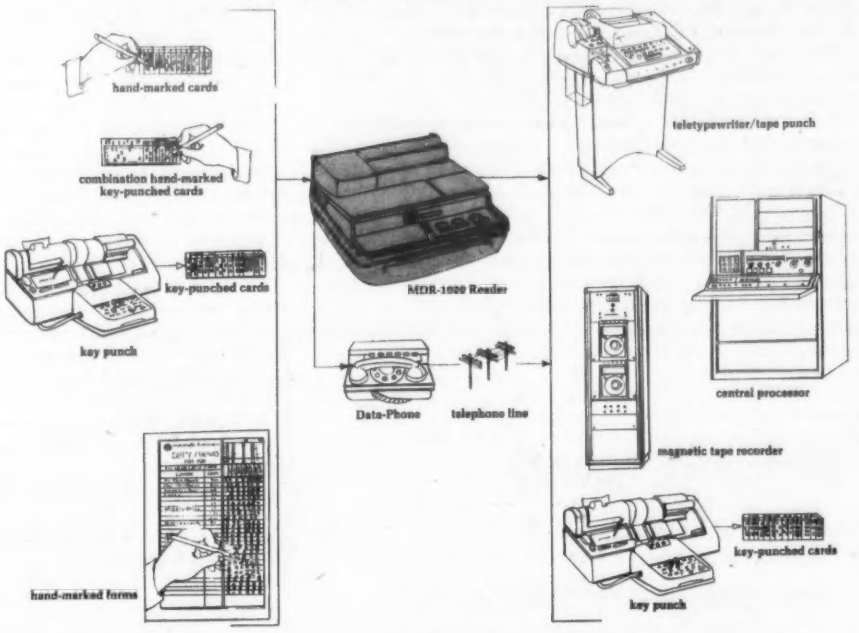
Besides USASCII, other codes, such as BCDIC, PTT6, and Binary are available on request.

Document Rates

Document rates at 10 characters per sec are 5 sec per card for 40-column spacing and 10 sec per card for 80-column. At 105 characters per sec, document rates are 0.5 sec per card at 40-column spacing and 1 sec per card at 80-column spacing.

Communications facilities can be either a 150-Baud channel or voice-grade circuit. The telephone transmission is by Data-Phone Model 202C, 103A, or their equivalents.

Typical MDR-1000 System



MDR-1000 Document Reader Specifications

Type: source data entry unit, optical reading
Reads: mark-sense documents, mark-sense cards, punched cards, or combined mark-sense/punched cards
Application: anywhere data system entry in computer-usable language is required
Input Media: pencil marked and/or punched tab cards. Pencil marked page
Input Format: standard 12-row Hollerith coding arranged in either an 80- or 40-column spacing
Data Rate: Bit serial: 10 characters per sec – 110 bits per sec
150 characters per sec – 1050 bits per sec
Bit parallel: 75 characters per sec – 750 bits per sec
Parity: odd or even
Document Rates: 40-column spacing @ 10 char/sec – 5 sec per card
80-column spacing @ 10 char/sec – 10 sec per card
40-column spacing @ 105 char/sec – 0.5 sec per card
80-column spacing @ 105 char/sec – 1.0 sec per card
Output Language: USASCII (BCDIC, PTT6, Binary, etc., on request)
Transmission: Model 202C Data-Phone
Model 103A Data-Phone
Communications Facilities: 150 Baud channel
voice grade circuit
Electronic Interface: dry contact
EIA Standard RS-232B
Feed: manual
automatic – hopper capacity 500 cards (optional)
Size: 16¾" wide by 16¼" deep by 9¾" high
Power Requirement: 115 volts AC, 60 Hz

Publisher Buys Small EDP Company

WASHINGTON, D.C. – *The Bureau of National Affairs, Inc., (BNA),* a Washington, D.C. publisher, announced that it has acquired *Fisher-Stevens, Inc.,* a New Jersey corporation providing direct mail and electronic data processing services. The purchase price was $3,000,000. Fisher-Stevens will operate as a subsidiary of BNA.

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Calendar

Jan. 17-18, Chicago – American Society for Cybernetics: Cybernetics Symposium and Business Meeting. Contact: G.T. Jacobi, II Research Institute, 10 West 35th St., Chicago, Ill.

Jan. 18-19, Tampa, Fla. – First Annual Simulation Symposium. Contact: Ira M. Kay, Registrar, P.O. Box 1155, Tampa, Fla. 33601.

Feb. 22-23, New Orleans, La. – Assn. of Data Processing Service Organization Management Conference. Contact: Jerome L. Dreyer, Automatic Data Processing. Inc., 1040 Highway 46, Clifton, N.J. 07013.

Mar. 12-15, Philadelphia, Pa. – Joint Spring Conference of the Univac Users Association and the Univac Scientific Exchange. Benjamin Franklin Hotel. Contact: UUA – George Popp, Harris Trust and Savings Bank. 111 West Monroe St., Chicago, Ill. 60690, or USE – Harry Rayner, Univac, P.O., Box 8100, Philadelphia, Pa. 19101.

Mar. 14-16, Houston – Sixth Annual Symposium on Bio-Mathematics and Computer Science in the Life Sciences. Contact: Office of the Dean, U. of Texas Graduate School of Biomedical Sciences, Division of Continuing Education. P.O. Box 20367, Houston, Texas 77025.

Two Years Faster Say Lawyers

Law Case Speeded By Simple Program

PHILADELPHIA, PA. – Attorneys here estimated that a computer speeded up a law case by about two years. To do this, the attorneys had only to put in 80 hours work, and they were described as being "ecstatic" over the operation. By contrast, the computer expert in charge, Philip Bagley, told COMPUTERWORLD that it had been a very routine job which did not involve very much.

The divergence of the two points of view probably exemplifies the most interesting part of the story, although possibly the fact that the job was done right, pleased the client, and was delivered on time may take it out of Mr. Bagley's description of "ordinary."

The job, which has just been completed, handled a mass of evidence for a law case. The evidence consisted of several thousand documents of various types.

Each document was summarized in a citation consisting of:

1) file number assigned to the document
2) document identification number or designation
3) initials of sender
4) initials of addresses
5) initials of recipients of copies
6) subject headings and topical phrases
7) initials of parties mentioned in the document text

Keypunch operators, working from the original documents, first recorded the file and document numbers, dates, senders, addresses, recipients and subject headings. Attorneys added other topical phrases and initials of principals mentioned in the text; these annotations were then incorporated in the keypunched citations. Computer programs listed the citations by file number and generated indexes to these citations. Simple indexes were made, sequenced by document number and by date. Initials and abbreviations were listed against full names. A permutation index (a concordance with context) made it possible to look up citations given any word or phrase recorded as subject matter. The most important output was a list giving each party all the citations in any way associated with that party.

The computer programs were written primarily in Fortran. A few were rewritten in 1401 Autocoder to decrease processing time. The programs, which included the standard IBM generalized sort programs, were run on the IBM 7040 and 1401 computers. Processing times were about 3 hours on the 7040 and about 3 hours on the 1401.

The resulting index to evidence has placed at the attorney's disposal a comprehensive view of the case as reflected in the documentary evidence.

Aging Software Fought By New Co.

GLENSIDE, PA. – Information Systems Leasing Corp. has been organized by software pioneer Mary K. Hawes to develop and lease major software systems. Mary Hawes was most recently Manager of Information Systems at Univac where she was responsible for the development of the IMRADS information management system.

The company's major product is an applications-oriented Information System Processor which is to aid users in building their own transaction-oriented information management system. The resultant system will enable users to evaluate the time and cost of data processing. The ISL Processor is designed for third-generation and later computers, but will include subsystems that can be used by current tape installations.

"Leasing applications software is the best way to meet the problems of users that have been caused by software obsolescence," Mary Hawes said. "Leasing provides the user with the maintenance, training, documentation, and technical support he needs. On the other hand, a lease provides the developer with protection to justify the time and money required to produce an outstanding product."

SPERRY RAND

for programmers only:

The hard facts

about Software—and you!

As you well know, in the computer field, Hardware and Software go together—like ham & eggs, red, white and blue, boys and girls, and other natural and essential combinations.

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Right now, there are especially desirable opportunities available at Univac in real time applications, command and control, compiler and machine language development, and research and methods programming.

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'1'	SAMPLE1	104040	104100	104120	104150	104210	104550	105140
	SAMPLE2	104730	105450	106180				
ACCOUNT-NAME	SAMPLE2	104740	105460	105840	105930	106165	106190	106310
		106490	106860	107520	107760			
SALES-YTD	SAMPLE1	105330	105350	105440	105560			
	SAMPLE2	104670	104800					

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It's Not Easy

Estimating Their Performance

The announcements of the multi-processor 360/65s and the small-scale 360/25s both make a considerable play of price performance – and, at present, fail to provide any hard facts to back up these claims. In general, sensible EDP managers will want to wait until such facts are available before doing anything – but sometimes it may be necessary to go ahead. If so, here are COMPUTERWORLD's suggestions as to a few methods that can be used today to estimate the performance of the systems. Naturally, if and when hard facts do become available, these methods should be re-evaluated.

Model 360/25

Presently this system has no directly available performance data. The main thing that is known is that the internal performance is approximately 70% of the 360/30.

The 360/30 that IBM is referring to is, of course the 1.5 micro-second 360/30 which they are currently marketing. (Originally, they were offering a 2.0 micro-second 360/30.) Most of their performance figures for the Series 360 still continue to list the performance of the various sort programs, RPGs, Cobols, etc. for the 2 micro-second systems as there are quite a number of them in the country. These figures will act as a first approximation for the performance of the new system.

For more detailed work, try to find a 2 micro-second 360/30 in your area – and see if you can have some of your programs run on it. This can be particularly useful when you want to determine whether or not one of your programs is central processor bound.

This method of estimating performance also appears to be applicable to the compatibility options as well as to the native 360 mode programs – simply find out their performance on the older 360/30s and you should not be too far out.

Model 360/65 Multi-processor System

IBM is suggesting that their clients select a "representative" work stream from their own installation, time it on a single processor 360/65, and then take it to Gaithersberg and time it there on the multi-processor version. This appears fair, but does have some hidden snags.

First of all, this places the responsibility on the user to select a representative stream, and to work out how to extrapolate from this to full workload timings. No guidance as to how to do the selection is provided, nor how to handle the extrapolation.

Neither the selection nor the extrapolation is easy – and recent history suggests that the answers given by these techniques may well be 100% out. IBM itself has limited experience to help a user, as its most successful multi-processors are not of this multi-processing style.

The most nearly equivalent experience presently available is with

continued on page 7

Saving EDP Dollars With The New System — 360/25 —

By Alan Taylor

The appearance of a cheaper 360 system will interest anyone who currently has a Model 360 – and is looking for a way to save dollars without re-programming. There are ways to do this, but there are also pitfalls to be watched. In this, and subsequent columns, COMPUTERWORLD readers will get suggestions as to how to save money with the IBM 360/25.

The specifications of the new processor are unusual – and do not fit into the standard 360 pattern. The input-output rate of the selector channel is less than 25% of what it apparently should be, while the 8k model which the pattern shows should be present is not available. Both of these facts cause probelms when users try to save EDP dollars.

The low inout-output rate restricts the use of 360/25 so far as tape-dependent users are concerned, and the absence of an 8k or 12k memory size restricts the use of the system in replacing 8k Model 30s who do not need the processing power of the larger system. These two restrictions considerably reduce the number of Model 30 users who can save some EDP dollars as a result of the new and cheaper 360/25 becoming available.

New IBM Systems

One major group who can save however are the smaller DLS users, and they stand to save the cost of a programmer, or alternatively, to gain enough storage to handle communication programs in parallel with their present system!

Here is what to look at.

Try replacing your present Model 30 with an equivalent Model 25 or a 25 with a slightly larger core storage.

If you replace it with an equivalent Model 25 then you can take the reduction in rental and use it to pay for another programmer or whatever it is that your installation most needs. If you replace it with a Model 25 with a larger store you could add another program under the multi-processing options of DOS and then be paying about the same rental. Even so, with the smaller integrated units you can save a little on the floor space you need.

The problems, and there are some, can be summarized in performance and peripherals. So far as performance is concerned, almost certainly your present programs are governed by the speed of the 2311s. The access time on these units is so much slower than anything else on your system that it often conceals the fact that processing is not always in operation. In this case you are in good condition and can go ahead with your replacement just as soon as you can get your new system from IBM.

With regard to peripherals, you must check that the peripherals you need are available with the Model 25. It cannot run the faster tape units, the 2314 or the 2250. However, if you do not have, or are not too dependent upon these, you should be alright.

These are not the only wyas in which you can save EDP dollars with the 360/25, There are others, and next week we will discuss further ways of saving EDP dollars with the new system.

Yes, The 360/25 Console Is NEW!

Probably the major change, so far as users are concerned, that has been made on the 1968 version of the IBM 360 is a new console. Outwardly simple, the 360/25 version of the familiar 1050 console typewriter has hardware connections to the main frame and can be used for many of the standard console operations such as entering, on-line debugging, and noting the contents of the various registers.

The advantage of this system is that it produces hard-copy records and handles the translation to and from hexadecimal.

In previous systems some of these facilities were available through software systems, but in general there had to be a lot of "fiddling" action at the console switches and dials to do even the simplest console operation. Now these can be handled straight from the typewriter.

One of the results of the new system is that there has been a simplification of the appearance of the console panel itself, with many switches and lights being eliminated.

The simplified model of the 360/20. The unit the girl is holding is the "scratchpad" memory of the system.

Some Technical Data On The 360/25 Hardware

System/360 Model 25 is the member of the System/360 family that extends full system compatibility below the price of the Model 30. Priced between the Model 20 and Model 30, the Model 25 makes available to a larger group of users System/360 concepts of standard interface and modularity, solid logic technology, highly flexible data organization and handling ability, as well as full system compatibility. This is another system that encompasses applications in commercial, scientific, data acquisition and communications fields.

Monolithic Semiconductor Circuits for Local Storage Only

Solid Logic Technology (SLT) uses half-inch ceramic squares on which circuits are printed that connect minute transistors, diodes and resistors. These are the familiar aluminum-covered, multipronged, square-shaped plugs used in System/360 cards and more accurately referred to as hybird circuits. Model 25 continues the use of SLT logic cards.

Reloadable Control Storage

System/360 Model 30s have plant-installed microprograms located in Read-Only Storage (ROS). Reloadable Control Storage is an extension of the concept of ROS, Reloadable Control Storage is a specific area of core storage not available to the user. Instead of the permanently stored micro-programs of ROS, where native and compatibility micro-programs are physically in separate areas, either the System/360 microprogram or a 1401/1460/1440 control program is loaded and resident. To switch from System/360 mode to compatibility mode, another micro-program is loaded displaying the other.

Integrated I/O Attachment

Integrated attachment refers to an I/O control unit that is incorporated within the processing unit. The native attachment capability for selected devices provides that through these devices do not connect to a standard I/O channel, they are programmed as if they did. The devices are addressed using channel and device addresses and they respond with the same status conditions.

Functional and logical capability built into the channels of System/360 Model 30 and above minimize CPU interference from the channels to free the CPU for the processing load. Model 25 retains this concept of overlapping the operation of the attached devices with that of computing, and overlapping the operation of other devices on the same (multiplexor) channel. The degree of overlapping is reduced, however, because of the reduced throughput demanded of this lower-priced system. At the price of an increased channel interference rate, native attachment capability results in significant reductions in space requirements, overall power requirements and total system costs.

Look At This — Someone Understands Computers & People

The current Reader's Digest 1968 Sweepstakes is being handled by a designer who has managed to produce really good human relations and effective computer economy – using only his ordinary mailing list tape. The program prints 14 lines into a pre-printed 64 line letter, and the reader receives personal touches throughout: his street address to which the prizes may come; the names of some neighbors; his home town; his state; and some neighboring communities – all being neatly dropped into the text. He is even given six tickets with his name on them, which is pleasing but hardly affects his chances in the drawing. There is so much personalized material, and it is so well spaced, that reader interest is kept high throughout.

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Mr. Alan E. Taylor
GL 515304
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$999,000 SWEEPSTAKES
50 $5,000 CASH PRIZES
or your choice of a new Cadillac, Lincoln Continental or Chrysler Imperial
EXTRA
$100 A MONTH FOR LIFE

Mail back this entire book to qualify for your prize

Dear Mr. Taylor:

You and your neighbors, C. Orrill and Mr. A. Beccia, are among the lucky persons in Framingham selected to receive 6 Tickets in our 6th Annual $999,000 Sweepstakes. To qualify for all prizes, use the official envelope enclosed and mail back this entire Book of Tickets by Jan. 19. It is registered in your name as follows:

IMPORTANT
RETURN BY
Jan. 19

Mr. Alan E. Taylor
633 Central
Framingham, Mass. 01701

Important: If the above name and address is wrong, please correct it before you return

(turn to next page, please)

Two neighbors names -- probably previous two names on the address list.

The town name from the address.

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Mr. Alan E. Taylor
HL 548604
IS YOUR LUCKY NUMBER IN READER'S DIGEST
$999,000 SWEEPSTAKES
100 NEW 1968 CARS
your choice of a new Ford Mustang, Chevelle Malibu, Plymouth Barracuda or a brand new Javelin
OR $3,000 IN CASH

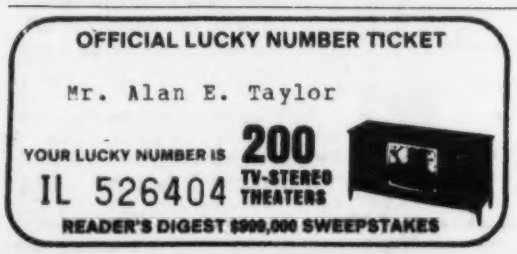
your Book to us... to find out whether you have already won $100 a month for life ... $5,000 in cash or a new 1968 Cadillac, Lincoln Continental, or Chrysler Imperial... $3,000 in cash or a new Ford Mustang... a Home Entertainment Center... a portable color TV set... a Waring Blender... or any one of 106,666 prizes!

You don't have to subscribe to be eligible for a prize. But if you subscribe now (before the new price goes into effect next month), you will receive 24 months of the Digest for only $3.99. (The same number of issues would cost you $12.00 at the newsstand or $5.94 at today's regular subscription rate. And beginning next month, this rate will be increased to $7.94!)

You will also get a free "Mystery Gift"

(turn to next page, please)

14 computer lines gives a 64 line personal letter!!!



if you subscribe at this time. The nature of the "Mystery Gift" is a closely guarded secret, Mr. Taylor.

But I can tell you this much: When the postman brings it, you'll be glad that you took a moment to enter the Sweepstakes.

Previous Sweepstakes winners live in Pittsfield, Fitchburg, Framingham, Salem and many other cities and towns in Massachusetts.

So -- who knows? -- a check for $5,000 or a new car may very shortly arrive at 633 Central, Mr. Taylor.

To introduce you to the Digest, we want you to have a chance to win a prize in this Sweepstakes, and, if you wish,

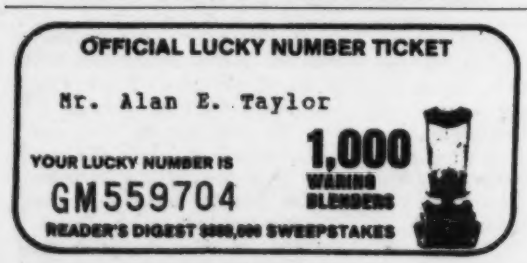
(turn to next page, please)

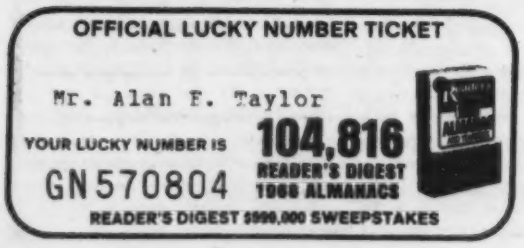
Again the entry.

Local communities, probably the last few just completed.

State.

The address.





to take advantage of this "last chance" bargain offer before the subscription price increases.

Naturally, there's no need to send any money now. But -- to be eligible for all prizes -- your Book of Lucky Number Tickets must be returned by Jan. 19.

The best way to be sure you do not miss the deadline is to mail back your Book of Tickets today in either the "Yes" or "No" envelope enclosed.

Why not do it right now?

Cordially,

Carolyn Davis

To qualify for your prize, mail back this entire book.
Reader's Digest, Pleasantville, New York 10570

For Remotes

New TEC CRT Has 144 Legends As Well As Alphameric Chars.

MINNEAPOLIS, MINN. – Crystal-clear readability and customer-oriented flexibility are claimed for a new CRT display system designed and built by Transistor Electronics Corp. (TEC), Minneapolis-based producer of electronic display, control and data input/output devices and systems.

Desktop Unit

The new TEC Data-Screen Display Terminal offers flexible key arrangement and key legends on an optional keyboard. It will interface with most computer systems, Hard-copy devices, and standard communications links, including Dataphone and Teletype.

The desktop unit will accommodate up to 144 customized fixed alphanumeric messages and special symbols, visible only when illuminated.

The CRT system's character repertoire includes 26 alpha, 10 digits and six punctuation marks, plus a flashing cursor for character and line indication. The operator can add, change or delete as desired.

When several units are used as inquiry terminals tied to a single computer, selective programming can be established so that confidential or restricted information is communicated only to the appropriate stations.

The package with 8-level code compatibility includes cathode ray tube, character generator, 8 bit per character refresher core memory and control logic.

Price

Price is approximately $5000 to $7000 per unit depending upon options selected.

More Computerized Typesetting; Savings Range From 10 – 50%

LOS ANGELES, CALIF. – A Sigma 2 computer will accept data typed in from typewriter-like keyboards designed and built by Black Dot, Inc., Crystal Lake, Ill, phototypesetting firm. The computer, manufactured by Scientific Data Systems (SDS), will be linked to a new phototypesetting machine at Black Dot. Black Dot president John Dinzole estimates that the system will work up to 50% faster than conventional type setting techniques.

The system is expected to save between 10% and 50% of the cost of producing film from original manuscripts for books, catalogs and other large printing jobs.

The computer will hyphenate and justify the lines types in from the original manuscripts. It will set headlines and make other typographical adjustments as indicated by instructions typed in with the copy. All of the type will be displayed on an SDS keyboard/scope terminal.

After completing the editing and makeup, the computer will instruct a Mergenthaler Linotron 505 phototypesetting machine to automatically prepare type pages on film which can be used for any printing process. If updating of the copy is required, it can be done immediately and new copy phototypeset on the Linotron 505 within minutes.

The increase in efficiency expected from this new technique will permit Black Dot to expand its services. The firm now services the graphic arts industry mainly in the East and Mid-west.

The system is scheduled for completion during the first half of 1968.

Performance Of The New Systems

continued from page 5

Burroughs 5500 systems. These have been in operation for over four years, and during this time a great deal of experience has been gained in optimising their output. COMPUTERWORLD therefore suggests that EDP managers wanting to estimate the performance of the IBM 360/65 multi-processor system find a Dual Processor B 5500 installation, and talk to them about the problems and possibilities involved in this style of operation. Then, with this in mind, select a number of work streams, taking care to account for a good proportion of any runs that require the use of specific peripherals, and go to Gaithersberg. Afterwards, when it comes to interpreting results, another talk with the B-5500 installation manager may prove helpful.

Computer Stocks: Trading Summary

Week Ending January 5, 1968

NEW YORK STOCK EXCHANGE	1967 High	1967 Low	Week High	Week Low	Last	Week Net Change	Week %Change
Addressograph-Multigraph	80 1/2	46 7/8	80 1/2	76 1/4	77	- 2 3/8	- 2.99
American Research	195	37 3/4	195	167	167	-24	-12.57
Ampex Corp.	40 3/4	22 3/4	37 1/8	35	35 1/4	- 3/8	- 1.05
Burroughs	192	80 7/8	185 5/8	170 3/4	176 1/4	- 9 1/8	- 4.92
Collins Radio	114 7/8	53	101 1/8	93	95	- 4	- 4.04
Control Data	165 5/8	33 1/2	138 1/4	126 1/4	134 5/8	- 1 7/8	- 1.37
Electronic Associates	30 1/4	16 3/4	24 3/4	22 5/8	23 1/8	+ 1/8	+ 0.54
General Electric	115 7/8	82 1/2	97 7/8	94 5/8	96	. . .	. . .
Honeywell	117 7/8	63 1/2	108	97 1/2	99 7/8	- 9	- 8.27
IBM	648	362 1/2	627 1/4	588 3/4	593	-34	- 5.42
Litton	120 3/8	79 1/2	104 3/4	98 3/4	99 7/8	- 4 7/8	- 4.65
Nat Cash Register	136 5/8	67 1/8	133	118	119 3/4	-13 1/4	- 9.96
RCA	65 1/2	42 5/8	53 1/2	50	51 1/8	- 2 1/4	- 4.22
Raytheon	117	49	106 1/2	98 1/2	103 3/8	- 1 5/8	- 1.54
Sanders	77 1/4	37 5/8	66 1/2	58	59 7/8	- 5 1/8	- 7.88
Scientific Data	152 3/4	70 3/8	139	128 1/2	132	- 4 1/4	- 3.12
SCM	82 1/4	43 1/2	58 1/2	54 3/4	56 1/8	+ 1 5/8	+ 2.98
Sperry Rand	65 1/8	28 1/8	63 3/8	53 3/4	55 3/4	- 8 1/8	-12.72
NYSE COMPUTER STOCK AVERAGE						- 6.80	- 4.51

AMERICAN STOCK EXCHANGE	1967 High	1967 Low	Week High	Week Low	Last	Week Net Change	Week %Change
Audio Devices, Inc.	30 3/8	20	28 3/4	25 3/4	26 5/8	- 2 1/8	- 7.40
Automatic Data Processing	68 1/2	41 1/2	66 1/4	57 1/4	57 5/8	- 6 3/4	-10.48
Calcomp	46 3/4	34	46 3/4	40 1/4	41 1/2	- 3 3/8	- 7.52
Computer Applications	47 3/8	14	42 5/8	36 7/8	38 1/8	- 4 3/8	-10.28
Computer Sciences	67 5/8	18	63 1/4	51 3/4	54 1/8	- 8 1/8	-13.05
Digital Equipment Corp.	156	29 3/8	146	120 1/2	124 1/4	-20	-13.72
GC Computer Corp.	41	23 1/4	36 1/4	29 5/8	31	- 4 5/8	-12.98
Lesaco	139 3/4	33 5/8	138 1/2	114 1/4	118	-19 1/2	-14.18
Levin-Townsend Computer Corp	77	10 7/8	77	62	63 1/4	- 9	-12.12
Milgo Electronics	18 3/8	5 1/8	18 3/8	14 3/8	17 1/8	+ 3	+21.24
Mohawk Data Sciences	198 1/2	147	169 1/2	147	162 1/4	- 7 3/4	- 4.56
Planning Research	51	27 5/8	43	35 5/8	39	- 4	- 9.30
Potter Instrument	40 1/2	12 3/8	38 1/2	34	35	- 2 5/8	- 6.98
Randolph Computer Corp.	55 3/4	32 1/4	55 1/4	45 5/8	48 1/2	- 5 3/8	- 9.98
AMEX COMPUTER STOCK AVERAGE						- 6.76	- 7.37

OVER-THE-COUNTER	1967 High Bid	1967 Low Bid	Friday Bid	Friday Asked	Last Friday Bid	Week Net Change Bid	Week % Change Bid
Applied Data Research	30	3 1/8	20 1/2	21 1/2	23	- 4 1/2	-17.00
Bolt, Beranek & Newman, Inc.	30	8 1/4	25 1/4	26 1/4	28	- 2 3/4	- 8.48
Computer Usage	72	20 1/4	59	62	63	- 4	- 6.35
Cyber-Tronics	17 5/8	4 3/4	17 5/8	18 1/8	15 3/4	+ 1 7/8	+11.90
Data Products	23 3/8	2 1/2	18 7/8	19 1/4	20 5/8	- 1 3/4	- 8.48
Digitronics	23	6	21 1/2	22 1/2	22	- 1/2	- 2.27
DPA, Inc.	16 1/4	4 1/4	14 3/4	15 1/4	16 1/8	- 1 3/8	- 8.53
Electronic Memories	56 1/2	12 3/4	49 1/4	50	48 3/4	+ 1/2	+ 1.03
Fabri-Tek	15 3/4	6	13	13 1/2	12 1/2	+ 1/2	+ 4.00
LMC Data, Inc.	15 3/4	7 3/8	13	13 1/2	15 3/8	- 2 3/8	-15.45
Management Assistance	24 3/8	10 1/8	15 1/4	15 3/4	15 1/8	+ 1/8	+ 0.83
Memorex	226	63	177	179	185	- 8	- 4.32
Optical Scanning Corp.	102	25 3/4	85 1/2	87 1/2	94	- 8 1/2	- 9.04
Recognition Equipment Corp.	191	48 1/2	168	173	169	- 1	- 0.59
Systems Engineering Labs	63 1/4	8 7/8	55	56 1/2	61 1/2	- 6 1/2	-10.57
University Computing Co.	95	75	79	82	97	-18	-18.56

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RCA's Computer Losses Continue But Shipments Up 100%

NEW YORK, N.Y. – RCA's sales in 1967 exceeded $3 billion for the first time in the company's 48 year history and profits also registered a slight advance to a new record level for the sixth successive year, president Robert W. Sarnoff announced.

He told the company's 330,000 shareholders in a year-end statement that the sales and profit rises were achieved despite general economic uncertainties and a month-long strike at nine RCA plants which contributed to a 21 percent decline in second quarter earnings.

Mr. Sarnoff contrasted the company's profit performance with the estimated decline of 6 percent in 1967 profits for American manufacturing companies as a whole. He attributed RCA's successes to the "penetration of new marketing areas and the continuing strength of many of our established businesses."

RCA Expanding Its Role In Society To Aid Unskilled

Computer Bookings

RCA's computer bookings reached record levels in 1967 with shipments double those of 1966. However, because of the leasing nature of the business "substantial income is delayed for the future." Losses, therefore, are continuing but "the groundwork has been laid for substantial future profits." RCA's aim is to grow at a rate surpassing that of the computer industry as a whole and "to achieve in the 1970's a data processing business that will exceed any of our present operations in profitability."

NBC Sales Peak

NBC revenues exceeded the $500 million mark for the second successive year, reaching a new sales peak.

Sales of electronic components and devices continued to increase in key areas "with the primary stimulus to growth being the continuing heavy demand for color picture tubes."

The Hertz Corporation, which became an RCA subsidiary in 1967, registered its highest sales, as did the RCA Service Company, RCA Communications, Inc., and sales of RCA products and services abroad.

Because of cutbacks in the space program and greater emphasis on conventional tactical weaponry; RCA's government business declined slightly during 1967. This development, plus the rise in RCA's commercial activities, lowered to 18 percent the contribution of government business to RCA's total revenues. Nonetheless, RCA continues to be a major contributor to defense and space programs.

RCA continued its capital expenditures at the high rate of 1966. For the two years, approximately $400 million was spent for domestic plant and equipment, "representing the greatest investment effort in the history of the company."

Serving Society

Looking to the future, Mr. Sarnoff said RCA will intensify its emphasis on the company's development as a broadly based and diversified communications, electronic and service organization with an increasingly international orientation.

Taking note of the social problems troubling the nation, Mr. Sarnoff pledged to expand RCA's role in serving society.

"In all the cities where we live and do business, our skills and our people are already involved in aiding the underprivileged, in creating new job opportunities for the unskilled and in attacking the multiple problems of the ghettos," he said.

He added: "From the operation of Job Corps training centers to the development of electronics systems for education, we believe we can contribute significantly to the solution of many complex social problems."

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No Guarantee

Prisoners Trained In Programming

WALPOLE, MASS. – Inmates are teaching other inmates the computer business at the Massachusetts Correctional Institution at Walpole, the state's maximum security prison.

The experiment looks as if it will become a permanent part of the prison's education program.

Honeywell's Electronic Data Processing Division went into Walpole in July to teach computer programming in answer to an inmate's request passed on by a Roman Catholic laymen's organization which regularly visits the prison.

Malcolm D. Smith of Honeywell's Programming Systems Division, who set up the course, went into the prison first with a warning.

No Job Guarantee

"We told the men," Smith said, "that learning how to program a computer will not guarantee them a job when they get out of prison. It's up to them."

"But," Smith added, "we told them, too, that the computer industry will need more than 285,000 new programmers and other technicians by 1970. These courses will allow the men to move into this job market."

Smith, working with Walpole's Catholic chaplain, Father John Foley, and State Corrections Commissioner John Gavin, arranged to have a battery of six tests given at the prison.

Fifty-five men, about 10 percent of the prison's population, responded to a recruitment drive and showed up for the tests. Ten were chosen. Their ages ranged from the early 20s to the late 40s.

As Good As College Graduates

"Although none of these ten men had been to college," Smith said, "their scores were equivalent to the scores of college graduates. In a couple of cases, they scored much higher than college graduates."

For example, Smith said, the men scored an average of 33 on the general aptitude test while the average for college graduates is 28. On a logic test one of the ten scored two-and-a-half times higher than the average for college graduates.

The men settled down for a ten-week course in the fundamentals of data processing. Seven completed the course.

These men went back to work immediately on a fifteen-week second-phase course to learn Cobol.

Student Teachers

At the same time, the seven graduates began teaching the fundamentals course to a second crop of 22 inmates and to write an instruction textbook on electronic data processing.

Smith believes the men will be able to continue the course by themselves with only minimum assistance from Honeywell.

How good are the inmate teachers? "Great," Smith said. "They go way beyond the things we taught them. They're teaching things they had to pick up from outside reading."

The men are deeply involved in the program.

"Look, man" one said, "This means something. The computer industry is just like the automobile industry was 40 years ago, just starting to move. And I've got a chance to be in it."

Smith keeps a volunteer team of six Honeywell programmers working hard to instruct the Cobol class.

"One teacher couldn't handle them," Smith said. "The students were going into it with such detail that we had to bring in specialists to teach segments of the course."

On to Fortran

The men work up a computer program each week – they say it takes about four hours. The instructors run these programs through a computer at Honeywell to see if they work and return the output to the man. The inmates go over the results at the start of their three-hour weekly class in the prison library.

"There's no limit to how far these men can go," Smith said. "We plan to carry them further into more sophisticated programming languages and techniques."

After Cobol, the students will get a brief mathematics course and learn Fortran.

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